

MONTANA

Wildlife

Summer 1964



Montana Fish and Game Department Official Publication

Digitized by the Internet Archive
in 2010 with funding from
Montana State Library

STATE OF MONTANA

Governor—Tim Babcock

Montana Fish and Game Commission

Cover Picture

CHAIRMAN W. E. Staves, Polson
V. CHAIRMAN John T. Hanson, Sr., Malta
MEMBERS E. G. Leipheimer, Jr., Butte
Lyle H. Tauck, Hammond
Robert H. Weintz, Great Falls

Department

DIRECTOR Frank H. Dunkle
DEPUTY DIRECTOR Keith A. Freseman

Division Chiefs

INFORMATION-EDUCATION Lloyd Casagrande
FISHERIES MANAGEMENT Arthur Whitney
GAME MANAGEMENT Wynn Freeman
RECREATION & LANDS DEVELOPMENT Robert Cooney
LAW ENFORCEMENT Orville Lewis
CHIEF CLERK Bob Turnbull



(Photo by Eldon Smith)

Picturesque beargrass of the Rocky Mountains graces high alpine meadows. The nodding fields of fluffy blossoms are to many the most striking flowers of western mountains.

Beargrass blossoms out around July in Montana. It does not bloom profusely each year.

SUBSCRIBERS—Please inform us when you have a change of address, otherwise your name will be removed from our mailing list.

Editor—Vernon Craig

REPORT OF BIENNIAL ACTIVITIES—May 1962 - April 1964

CONTENTS

Administration.....	2
Recommended Legislation.....	3
Information-Education.....	6
Game Management.....	8
Recreation and Lands Development.....	14
Statistical Section.....	17
Fisheries.....	18
Law Enforcement.....	26
Financial Report.....	29

Cover Photo by Eldon Smith

ADMINISTRATION

The Montana Fish and Game Department has realigned its administrative structure for more efficiency. A district supervisory system is now in effect. For convenience, the state has been sub-divided into seven districts with headquarters in Kalispell (District 1); Missoula (District 2); Bozeman (District 3); Great Falls (District 4); Billings (District 5); Glasgow (District 6), and Miles City (District 7).

Each supervisor has day to day supervision of all persons assigned to his district and is responsible solely to the Department Director or, in his absence, the Deputy Director. Previously, there was no single authority in a district. A

staff made joint decisions on the district level as well as joint recommendations to the director.

Division chiefs compose the director's staff. With realignment, there has also been a change in the function of this staff. It will plan, coordinate, and budget for various activities of the department under direct supervision of the director. District supervisory personnel will see that programs planned by the staff and approved by the director are carried out.

A new Division, Recreation and Lands Development, was necessitated by a growing need for planned access to hunting, fishing and other recreation areas.



1



2



3



4



5

- 1 — Commission Chairman W. E. Staves
- 2 — Vice Chairman John T. Hanson
- 3 — Commission Member E. G. Leipheimer, Jr.
- 4 — Commission Member Lyle H. Tauck
- 5 — Commission Member Robert H. Weintz
- 6 — Department Director Frank H. Dunkle
- 7 — Deputy Director Keith A. Freseman

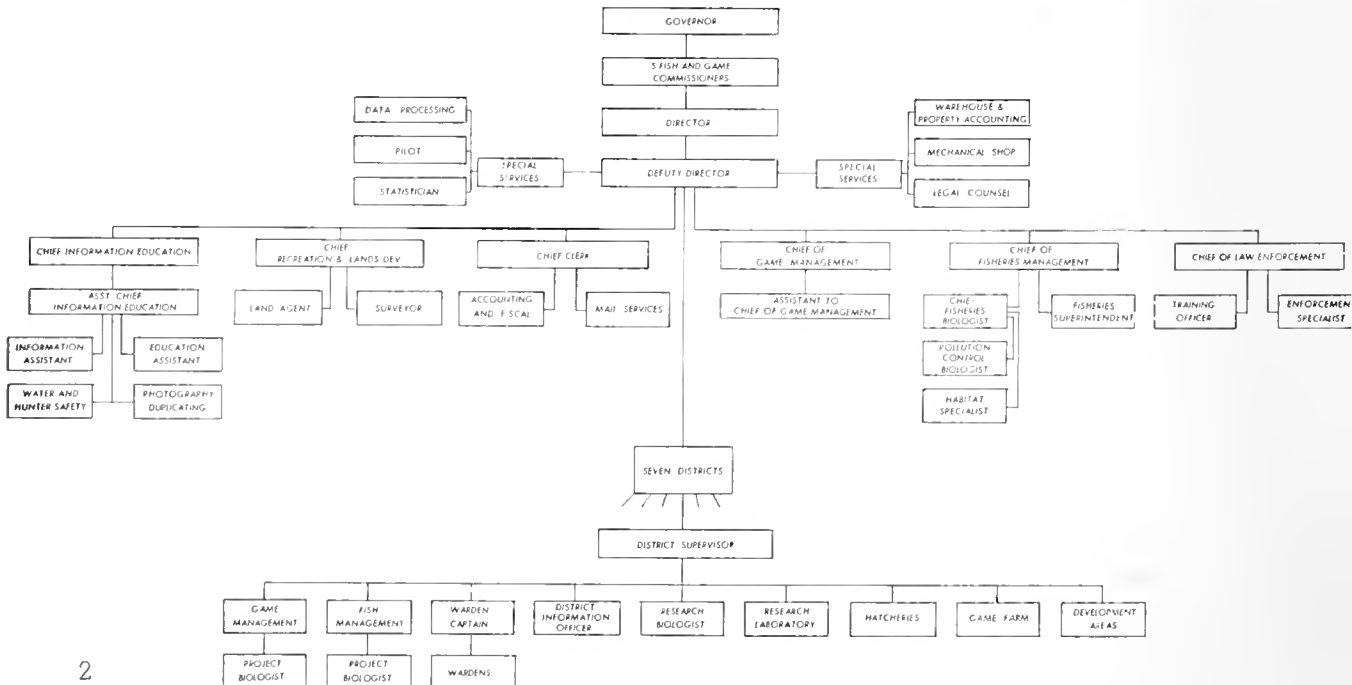


6



7

ORGANIZATION CHART



RECOMMENDED LEGISLATION

Stream Conservation Law

The Stream Conservation Law passed in 1963 will expire June 30, 1965 unless action is taken to insure its perpetuation. This important legislation provides a measure of legal consideration for trout streams and a means of resolving inter-agency differences that may result from overlapping responsibilities.

The Fish and Game Commission is obligated to perpetuate a stream fishery. In order to provide sport fish, it follows that the necessities for fish growth and reproduction must first be present. High on the list of necessities are certain physical qualities of natural stream channels—such things as bank cover, undercut banks, proper distribution of pools and riffles, and the associated bends or meanders. Conversely, construction and hydraulic projects often change or deteriorate streams so they will no longer support or rear sport fish. This presents a sharp conflict of interests and an obvious overlap of responsibilities.

The Stream Conservation Law set up to take care of such problems provides first that preliminary plans for projects that may affect fishing streams must be submitted to the Fish and Game Commission prior to the beginning of construction. The Commission then reviews the plans and advises the applicant as to whether or not the project will adversely affect the fisheries potential of the stream. Alternatives may also be recommended.

In the event there is an impasse between agencies in reaching mutual agreement, the problem may be turned over to a board of arbitration. The board, composed of a member from each agency and a third person mutually agreed upon by both agencies, hears testimony and renders a binding decision.

Under the regulatory influence of the Stream Conservation Law, inter-agency problems have been resolved without arbitration. From July 1, 1963 through May 31, 1964, the Fish and Game Department has received 34 notices of construction projects affecting fishing streams, three from cities or counties and 31 from the Montana Highway Department.

Two of the city-county projects were judged non-detrimental. The third was detrimental, but



Physical requirements of fish are destroyed in manhandling of streams.

fish and game recommendations to alleviate stream damage were followed.

One of the 31 notices received from the Highway Department is in the process of evaluation at time of this writing, June 5, 1964. Of the other 30, the Department has recommended changes in 8 and no change in 22. Our reasons for not recommending changes in these 22 projects were either: (1) the project caused minor damage to good fishing streams; (2) no reasonable alternative could be suggested; or (3) because the project affected streams of minor importance. Seven of the 22 projects fell into the first category.

Agreements were reached on five of the eight projects judged "detrimental". On one of these projects two bridges will be installed to save a long meander and boulders will be placed in a length of reworked channel; on three projects loss will be reduced by adding structures and improving access; and on the remaining project the road alignment will be changed to reduce encroachment.

The Fish and Game Commission has recommended line changes to reduce or eliminate encroachment for all three of the projects on which no agreement has been reached. No decision can be reached on two of these projects until the route of the railroad relocation, necessitated



As use of recreational areas increases, problems of sanitation, safety, and protection of public property become more acute.

by highway construction, has been determined. No mutually agreeable solution to the remaining project has been reached. The matter can be resolved quickly by arbitration if the constructing agency notifies the Fish and Game Commission that it refuses to modify its plans as provided for under sections of the Stream Conservation Law.

This law has not been a roadblock to stream-side construction—73 percent of the projects submitted have been approved without change. **This law does help us save our dwindling stream habitat**—changes or mitigative measures have been negotiated on 18 percent of the projects submitted. **This law is workable**—only 9 percent of the projects submitted were being held up as of June 1, 1964, and these can be resolved any time the constructing agency desires by using the arbitration which is provided for in the law.

The Fish and Game Commission feels that the Stream Conservation Law is a fair and workable instrument and recommends that it be given permanent status.

Authority to Regulate Use of Fish and Game Lands

With the ever-growing influx of recreationists seeking places to camp, hunt, fish, picnic, or otherwise use fish and game lands, there is a problem developing in controlling use of the areas. As it now exists, the Fish and Game De-

partment does not have legal authority to set standards for safety or sanitation, or to direct routes of traffic.

There is a pressing need for the commission to have regulatory powers that would afford proper control and coordination of various land uses. Such rules would be drafted and enforced in the interest of public health, public safety, and protection of public property.

Standardize Fish Nomenclature— Include Paddlefish As Game Fish

The latest nomenclature adopted by the American Fisheries Society in 1962 incorporates all species of the family Thymallidae (grayling) and all species of the family Coregonidae (whitefish) into the family Salmonidae (chars, trout and salmon). In the interest of standardizing the names on a national basis, the commission recommends that this change of nomenclature be adopted.



During the past few years, the popular sport of "paddfishing" has been rediscovered, especially on the Yellowstone River.

The paddfish does not enjoy any measure of protection under its present status. The Montana Fish and Game Commission recommends that all species of the genus *Polyodon* (paddfish) be included as game fish so that the commission can legally establish limits commensurate to managing this sports fishery.

Authority to Issue Special \$20.00 Deer and Antelope Licenses

Since 1955 the Legislature has granted authority to the Fish and Game Commission to issue \$20.00 non-resident deer and \$20.00 non-resident antelope licenses. The expiration date of present authorization is December 31, 1964.

The issuing of twenty-dollar deer and antelope licenses has been a necessary means of managing animals in high concentration areas where resident hunting pressure is so light as to not adequately harvest the herds. Without this authority, deer and antelope in some of the eastern Montana areas cannot be properly harvested by residents and the severe use of natural forage would become a serious problem. Excessive use of forage and crops on private lands can become a problem to landowners.

The commission recommends that authority be given for the continued issuance of twenty-dollar deer and antelope licenses.

Marten

An amendment to Section 26-321, Revised Codes of Montana, is proposed which would give the Fish and Game Commission authority to manage marten as they do other furbearers.

The proposed amendment would place marten in the same category as other Montana furbearers (exception beaver). It would eliminate all of the special detailed requirements of tagging, transporting and reporting which are presently required. The commission feels that present restrictions have outlived their usefulness, and besides imposing an unnecessary burden upon trappers makes it difficult for the Fish and Game Department to establish a sound long-range management program for this native furbearer.

Place Beaver Under Commission Regulations

Years ago when beaver were at a premium and there were no synthetic products to take the place of furs, trappers depleted beaver numbers over much of the northwest. In Montana, certain laws were enacted to aid in a program to bring beaver back to abundance.

For many years now, beaver have become reestablished statewide and have actually become a nuisance in many instances. Beaver no longer need the additional protection afforded under some of the earlier laws. In fact, administration of the required complex permit system and payment of tagging fees by trappers imposes unnecessary work and expense for both the Fish and Game Department and trappers. Permits and the payment of tagging fees by trappers makes proper beaver management difficult in most areas of the state and impossible in eastern Montana.

Repeal of Section 26-401, Revised Codes of Montana, would place the authority to manage beaver with the Montana Fish and Game Commission in the same status as other furbearers. It would eliminate complex administrative procedures and allow for more practical management.

Residency More Clearly Defined

One of the most frequent violations of fish and game laws is that of nonresidents purchasing resident hunting and fishing licenses. An amendment is proposed to Section 26-217, Revised Codes of Montana, so that there will be more clear definition of who may purchase resident hunting and fishing licenses. This would be a big aid in promoting uniform enforcement throughout the state.

Penalty for False Statement to Procure Licenses

The commission recommends that the penalty for illegal purchase of resident licenses by aliens and non-residents be set at not less than \$100.00. An increase in the penalty would help to minimize false statements of residency in order to buy resident hunting and fishing licenses.



Information and education personnel assist in a number of field activities. This is part of a field trip group inspecting deer winter range.

INFORMATION – EDUCATION

Disseminating information pertinent to the proper management of fish and game is the principal task of the Information & Education Division. Whether the problem is the maintenance of a deer herd or the perpetuation of the state's nationally-known stream fishing, one item is continually stressed—the importance of preserving the habitat which satisfies the living requirements of wild animals. This recurrent theme—the dependence of animals upon their environment—is becoming a familiar one to Montanans. It is basic to understanding the need for a variety of management programs varying from liberalized deer regulations to specific pieces of legislation such as the Stream Preservation Act.

Many avenues of communication are employed to satisfy the division's responsibilities.

News Services

News media, including newspapers, radio stations, and television stations, are the most

important outlets for wide dissemination of fish and game information, especially when the information is of immediate interest. As special news items arise, such as opening or closing of seasons, they are immediately given to the wire services and to newspapers in the areas affected. Additional news bulletins are prepared as the need arises to keep license agents up to date on regulations. Newspaper features and magazines are further outlets for fish and game information.

Mail Inquiries

A lot of fish and game communications will always depend upon direct mail in answer to inquiries and requests. Because of the many thousand pieces of such mail each year, special bulletins and re-print materials have been prepared which satisfy most inquiries. Special requests and inquiries that require unusual information must be given individual attention.

District Representatives

Information officers are presently assigned to five of the seven fish and game administrative districts. These are Great Falls, Billings, Kalispell, Bozeman and Missoula. These men are able to give more time to and become better acquainted with local situations than they would were they located in Helena. The department is thus able to better serve sportsmen on the local level while still doing so in a coordinated manner.

Assistance is given to other divisions in many ways. Talks illustrated with 35 mm slide series are presented to sportsmen, civic, and other organized groups. Slide series with scripts are made available to other personnel. Assistance is given also in various phases of field activities, such as aid in organizing and conducting field trips for the benefit of sportsmen.

All District Information Officers have firm biological backgrounds. Their work has proven an invaluable part of the overall I & E Program.

Movies and Photography

Next to actually being on the scene, no other media is as appealing or as effective as a good sound-movie. In fact, movies often have advantage over actual experience since the observer can sit in comfort and safety while he looks at what may otherwise be a dangerous or uncomfortable situation.

The film laboratory, besides doing a considerable amount of actual photography, is charged with putting together sound-tracking and duplicating film footage taken by other I. & E. personnel. These films are made available to schools, TV stations, sportsmen, and other interested groups through the fish and game film library.

Hunter and Water Safety

The administration of this program is the responsibility of the Information & Education Division. Though central administration is done by the I. & E. Division, the Enforcement Division has shouldered most of the field administration. Actual instruction of youngsters is given by non-department instructors. This dedicated group of volunteer instructors serve without pay

and have done an excellent job of giving required instruction to young hunters.

On May 1, 1964 there were over 800 active hunter safety instructors. During the biennium covered by this report, 12,969 students have received certificates of competency.

The Montana Board of Equalization is now responsible for licensing boats in Montana; however, the Fish and Game Department is still charged with maintaining equipment standards and publicizing water safety and regulations.

Youth Education

As America becomes more cognizant of the value in outdoor recreation, there is a corresponding demand by schools and youth organizations for instruction in fish and game management. An Education Representative devotes most of his time toward working with these groups, with youth camps and in teacher training.

Wildlife Exhibit

The Division is also in charge of a wildlife exhibit which attends as many of the county fairs each summer as is practicable. This live-animal exhibits has always been one of the most popular features of the fairs. It gives both the youngsters and adults a chance to see first-hand many of the game and non-game animals that go to make up the natural fauna of Montana.

ADULT EDUCATION

The Fish and Game Department annually finances a program of adult education in cooperation with the Montana State University at Missoula and State College at Bozeman. The program calls for a series of educational lectures on wildlife and resource management to be presented in a number of Montana towns each year. As stated in the original agreement, the purpose of this program is to "develop a better understanding of advanced management of the natural resource base to the end that a more favorable environment for wildlife species may be attained and maintained."

Besides conducting regular forums, the Wildlife Extensionists work with sportsmens groups, civic groups, schools, youth groups, and cooperate with the department in other education programs as time permits.



Game managers attempt to provide the maximum opportunity to hunt game birds and animals consistent with the welfare of the resource. (Photo by Eldon Smith)

GAME MANAGEMENT

Wild game on all lands and waters of Montana is the property of the State and as such, belongs to all of the people of the State. The State Fish and Game Commission is charged with the responsibility of perpetuating the game resource for the people of Montana through sound game management practices.

The major objectives of the game management program in the State of Montana do not change from year to year. During the biennium, we have continued to operate under the principle that we should provide the maximum opportunity to hunt game birds and animals consistent with the welfare of the resource. The program of providing this maximum hunting opportunity is based on the information obtained from forage surveys, population surveys, harvest surveys and research.

Montana's progressive management program, which is based on factual information concerning the animals and their habitat, is providing sportsmen a maximum of recreational opportunity. Many sportsmen have participated in the recreation of hunting nine big game species. A Montana big game harvest of 162,710 animals in 1962 decreased somewhat in 1963 to 154,890 animals. The greatest contribution to the statewide harvest was deer. The harvest of this species averaged 122,514

during the past biennium compared to 126,303 deer taken during the 1960-61 biennium. A high take of more than 120,000 deer, however, is being maintained in the State. Fluctuations in harvest can be expected due to variable hunting season weather, season regulations and other factors. A five-year record of big game harvest is given for the State. Hunting success has rated generally high for each of the species involved.

The harvest of upland game birds increased during the biennium and a record high harvest of 727,749 birds of nine species was achieved in 1963. The waterfowl harvest of both ducks and geese also increased during the biennium. A five-year summary of the estimated game bird and waterfowl harvests is given to indicate trends of small game take by hunters.

The game harvest in Montana has continued at a reasonably high level. Montana still continues at an increasing rate to produce trophy heads of big game in the Boone and Crockett Club records of North America. During the biennium (1963) a typical white-tailed deer was taken in Flathead County which should rank third in the records of all North American heads of this class. A non-typical white-tailed deer was also taken in Flathead County in 1961 which should rank seventh.

MONTANA BIG GAME HARVEST—STATEWIDE¹

1959 - 1963

YEAR		Elk	Deer	Moose	Sheep		Goat		Antelope	Bear
					Limited	Unlimited	Limited	Unlimited		
1963	No. Hunters	66,622	124,831	783	72	400	420	878	27,907	28,010
	No. Killed	11,050	119,300	587	46	36	217	296	22,238	1,121
	Percent Success	17	96	75	64	9	52	34	80	4
	Permits Issued .....	....	....	821	80	518	493	1,098	31,346	....
1962	No. Hunters	69,714	126,740	811	93	271	394	712	29,026	29,815
	No. Killed	12,231	125,729	612	57	23	245	236	22,937	1,407
	Percent Success	18	99	76	62	9	62	33	79	5
	Permits Issued .....	....	....	836	95	361	470	876	32,164	....
1961	No. Hunters	61,470	125,011	610	71	187	359	494	24,337	27,723
	No. Killed	15,471	129,107	527	49	23	137	191	19,278	1,872
	Percent Success	25	103	86	69	12	53	28	79	7
	Permits Issued .....	....	....	630	81	302	452	654	27,103	....
1960	No. Hunters	56,320	122,486	535	69	243	330	662	18,853	25,402
	No. Killed	10,140	123,500	441	42	13	198	209	14,981	1,494
	Percent Success	18	101	82	61	5	60	32	79	6
	Permits Issued .....	....	....	553	74	339	410	791	20,820	....
1959	No. Hunters	69,055	119,874	479	57	212	274	694	19,402	....
	No. Killed	15,271	120,295	406	41	23	137	74	15,658	....
	Percent Success ..	22	100	85	72	11	50	11	81	....
	Permits Issued .....	....	....	505	60	267	345	858	21,148	....

¹ Determined by mail survey.

Prior records indicate a typical mule deer taken from Treasure County ranks about fortieth in a list of more than 200 records. A non-typical mule deer came from Madison County in 1961 which should rank twelfth in the records book.

Montana has three high ranking elk or wapiti heads. The Madison County bull taken in 1958 is in third place. The biennium produced two heads, ranking fifth from Mineral County and a sixth place tie taken from Carbon County.

A moose killed in Ravalli County prior to 1957 should rank sixth in the North American records.

Two bighorn sheep from the Sun River herd in Lewis and Clark and Teton Counties produced heads which should be a ninth place

tie and a thirty-first place tie from more than 100 entries in the sheep records of North America.

More hunters go out after deer than any other of our species of big game. Deer production, and in turn the annual surplus crop available for hunting, depends on forage conditions on critical seasonal ranges. Many winter ranges of deer in Montana have poor forage conditions. These areas will require reduction of deer or maintenance of low deer populations over a period of years to allow forage regeneration and recovery.

The Montana deer management program objective is to adjust deer numbers to available forage supplies on critical seasonal range. Although reduction of deer numbers has been accomplished in some areas, the recovery of



Checking stations provide harvest information as well as important biological information.

MONTANA UPLAND GAME BIRD AND WATERFOWL HARVEST—STATEWIDE¹ 1959 - 1963

	1959	1960	1961	1962	1963
Number Class-A Licenses (Bird and Fish) Sold.....	184,773	186,969	185,714	188,900	195,847
Number Upland Game Bird Hunters.....	70,472	71,860	59,213	74,798	86,262
Native Game Birds					
Sharp-tailed grouse	35,664	37,918	36,270	31,826	85,363
Sage hens	23,150	33,876	27,364	32,572	72,362
Ruffed grouse	32,941	44,403	72,772	85,642	60,731
Blue grouse	28,928	51,646	50,616	58,996	53,229
Spruce grouse	12,642	26,070	27,364	37,832	31,807
Exotic Game Birds					
Pheasants	174,882	157,192	169,351	190,331	309,807
Hungarian partridge	41,941	49,435	37,469	45,290	111,486
Turkeys	375	193	409	370	993
Chukar partridge	192	644	838	1,975	2,964
Unknown species	959	990	696	3,063	.....
Total Game Birds	351,299	402,164	432,394	487,527	727,749
Game Birds per hunter.....	5	6	7	7	8
Number Waterfowl Hunters.....	21,082	21,182	20,493	17,002	23,451
Ducks	120,167	97,225	147,165	100,147	190,429
Geese	5,908	4,276	10,433	14,675	19,613

¹ Determined by mail survey.



The objective of deer management is to adjust deer numbers to available forage on critical seasonal range.

deer forage has not been generally satisfactory to date. The largest, healthiest and most productive deer are found where food supplies are adequate and hunter harvest keeps deer in balance with available forage.

The elk is probably the most popular big game animal in Montana. Hunters will expend considerable effort and time and expense in hunting this large deer. It is now well distributed throughout the mountainous portions of the State and even in certain parts of the Missouri River Breaks.

The elk has expanded its range during the past 20 years through growth of native herds and reproduction of transplanted elk. The species is highly adaptable in food habits and dominates deer when competition for range exists. The animal now occurs on all suitable range of the State.

Future elk seasons may have to be more restrictive in the accessible ranges where hunters tend to concentrate. Proper management of this big game animal will require herd reductions in some locations to perpetuate its forage supply. The properly managed elk herd will thrive on good range and provide continued high quality recreation. The elk management program is designed to produce maximum numbers for hunting, that are compatible to forage supplies and other land uses.

During the biennium, weather and habitat conditions have proved ideal for the production of the various species of bird life that are

hunted throughout the State of Montana. Certain of the grouse species have returned to Montana in numbers that were thought at one time to be impossible to achieve. This was done in the face of providing reasonable hunting opportunity on these birds during the entire period that they were recovering from a low in their population cycle. Bird hunting is becoming an ever increasingly popular sport. The Montana Fish and Game Commission will continue to provide the maximum recreational opportunity in this field. It is felt that game bird hunting is one sport where the entire family can go into the fields as a unit.

Research is the key to future game management programs and progress toward better understanding of wildlife problems. Research results cannot be adequately summarized but reports are published and available to indicate the scope and findings of the work accomplished during the biennium.

Small game research included studies of the Merriam's turkey in Montana, sharp-tailed grouse and blue grouse ecology, and the effects of spraying on this species in the forests of western Montana. Blue grouse life history studies indicated surprising production of this species and resulted in more liberal seasons to more fully utilize the annual production of this bird, as well as other mountain grouse species.

Radiotelemetry was used to increase the effectiveness of sharp-tailed grouse population and ecologic studies in north central Montana. Land use practices, such as grazing and agriculture, have been found to greatly affect production and survival of sharptail populations.

Big game research continued on the Sun River elk herd, Gallatin elk herd, moose in southwestern Montana, deer in the Missouri Breaks and black bear in northwestern Montana.

Studies revealed the disproportionate harvest of segments of the Sun River elk herd which may contribute to the lower production found in that herd. The Gallatin elk range conditions continued to deteriorate and the need to maintain a lower elk population was confirmed.

Deer populations in the Missouri Breaks were found to fluctuate in response to critical forage conditions.

The black bear study revealed a surprisingly large bear population and low bear harvests which need to be increased in western Montana. Increased black bear harvests can be achieved by revision of present laws restricting the hunting of black bear.

The big game transplanting program has been largely restricted to the effort made by the Commission in transplanting elk from the Yellowstone National Park to the State of Montana, in cooperation with the Park elk control program. A total of 293 elk were transplanted into Montana during the winter of 1963 and 518 elk were released in 1964.

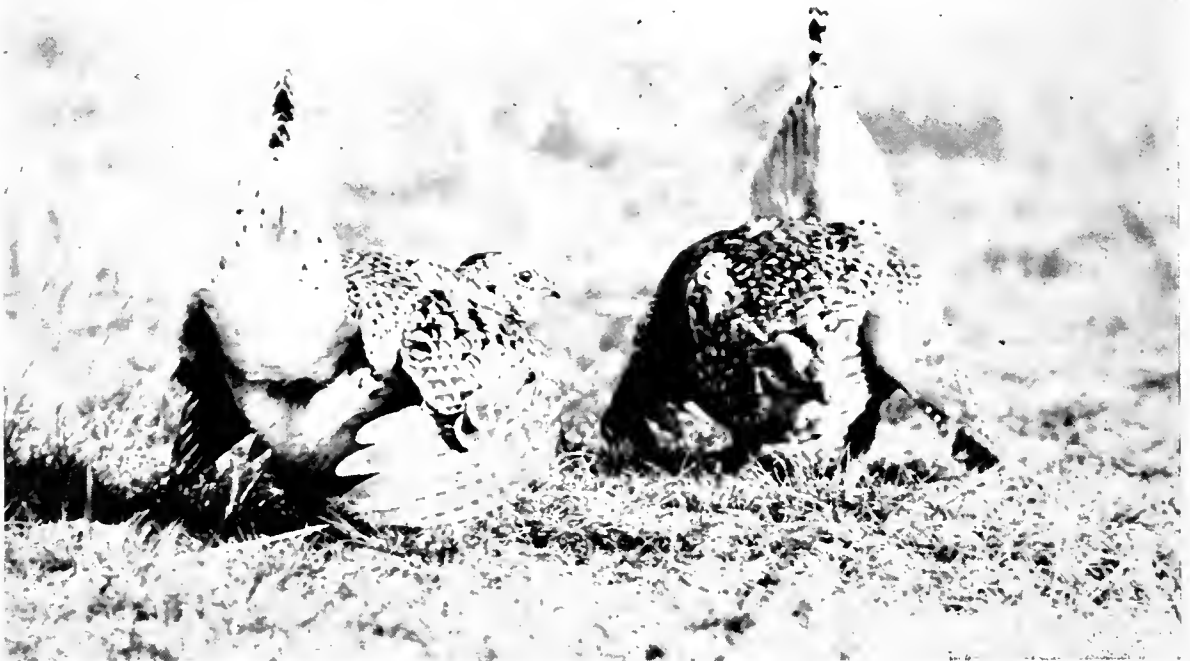
Nearly all suitable elk habitat in Montana has established elk herds at the present time. The transplanted elk have generally been used to supplement native herds or formerly transplanted elk.

During the past biennium a plant of sheep was made in the Sheep Creek area of Meagher County. A sheep plant of stock from the National Bison Range was also made near Lake Blaine in the Flathead Range of Flathead

County. Supplemental plants of sheep were also made near Rexford, Lincoln County and in the West Gallatin area.

The Montana Department has continued the program of introducing Merriam's wild turkeys into all suitable habitat of the State. A total of 138 turkeys were transplanted during the past biennium in Chouteau, Fergus, Judith Basin, Jefferson, Lewis and Clark, Lincoln, Mineral and Stillwater Counties. These plants have nearly completed the distribution of turkeys throughout Montana's suitable habitat area.

The game farm at Warm Springs was operated during the past biennium and produced pheasants at maximum capacity for introduction into the various areas of the State. The primary basis for which this game farm is operated is to supply birds for areas meeting with natural disasters that severely reduced the native populations. In years without natural disaster the birds are released in heavily hunted areas prior to season openings to make maximum utilization of the annual farm production.





A radio transmitter collar is being placed on this elk for research purposes. The device with an antenna is for tuning and a final check on the transmitter.

Montana Cooperative Wildlife Research Unit

The Montana Cooperative Wildlife Research Unit was established at Montana State University on February 8, 1950. It is operated through a coordinating committee with representatives from the State Fish and Game Department, State University and U. S. Fish and Wildlife Service.

Two new investigations were initiated by Unit personnel during this period. One study delves into the ecology of the Golden Eagle while the other is concerned with movements of the Northern Yellowstone Elk Herd.

Research Projects*

Several research projects have been completed, and the following are in progress:

Aging of Fishers and Analysis of Reproductive Systems	Continuing
An Ecological Study of the Grizzly Bear.....	Continuing
A Physiological and Anatomical study of Bighorn Sheep	Continuing
Big Game Harvest Analysis	Continuing
Bighorn Sheep Population Study	Continuing
Ecology of the Golden Eagle.....	New
Economics of Wildlife Production on Private Lands	Continuing
Elk Migration Study, Yellowstone National Park	New
Factors Influencing Horn Growth in Pronghorn Antelope	Continuing
Motion Pictures of Unit Activities	Continuing
Population Study of Canada Geese in the Flathead Valley	Continuing
Quantitative Aspects of Raptor Predation	Continuing
River Classification and Evaluation	Continuing
Seasonal Condition of Mule Deer	Continuing
Study of Alpine Ecology in the Northern Rocky Mountains	Continuing
Systematics of Blue Grouse in Northwestern Montana	Continuing

*Completed projects have been reported on in journals or theses, and in addition, segments of some continuing projects have been published.



RECREATION AND LANDS DEVELOPMENT

The Montana Fish and Game Commission established a new division in the Department's organizational structure during the fall of 1963. A Division of Recreation and Lands Development was set up to carry out the various functions of this expanded program.

One of the most important immediate objectives was determined to be the preparation of a state-wide recreation plan. Such a plan will act as a guide to the complete and orderly development of Montana's outdoor recreation potential. This plan will include a complete inventory of the state's recreation facilities. It will further determine the present and projected needs for recreation, both for Montana residents and out-of-state visitors. Finally, it will list an action program by which present and future needs will be met. All state agencies with recreational responsibilities will be involved in the preparation of this coordinated plan.

The Department's new division is directly responsible for the development and maintenance of recreational facilities at fishing access sites on lakes, streams, and rivers. It is further responsible for the construction of such facilities, where appropriate, on state owned and controlled game ranges and waterfowl management areas.

These developments consist of the establishment of necessary sanitary facilities and also cattle guards, boundary fences, picnic tables and fireplaces. In this way, public access

to key fishing and hunting areas will be assured and participation in these especially important forms of outdoor recreation will be greatly enhanced.

By proclamation of the Governor on April 1, 1964, the Montana Fish and Game Commission was designated as the primary recreation agency for the State of Montana. This appointment represented a clarification of responsibility in this rapidly expanding natural resources field. It also emphasized coordination among state agencies in planning and carrying out recreation developments. The assignment in addition created a focal point of coordination between state and federal, and state and private recreational planning and programs.

At the submission of this report, the Montana Fish and Game Commission has acquired 73 fishing access sites. These have been carefully selected on and adjacent to important fishing waters. In addition, 25 excellent recreation areas have been determined to be available for development on presently existing game ranges and wildlife management areas. Detailed development plans are being prepared for all of these areas. This program includes the installation of necessary sanitary facilities, as well as basic recreational developments.

The following list of fishing access sites and game ranges and wildlife management areas is included in the Department's recreational development plan: (These are listed by name, county, and administrative district)

MONTANA FISH AND GAME COMMISSION SITES

PRESENTING IMPORTANT OUTDOOR RECREATION POTENTIAL

DISTRICT 1

Headquarters — Kalispell

Lake Access — 19

NAME	COUNTY
1. Blanchard Lake	Flathead
2. Boot Jack Lake.....	Flathead
3. Carpenter Lake	Lincoln
4. Crystal Lake	Lincoln
5. Ducharme (Flathead Lake).....	Lake
6. Hey Greig Purchase at Big Fork (Flathead Lake)	Flathead
7. Grinde Purchase (Flathead Lake)	Lake
8. Kila or Smith Lake.....	Flathead
9. Lake Mary Ronan.....	Lake
10. Loon Lake	Flathead
11. Loon & Horseshoe Lake.....	Lincoln
12. Marl Lake	Lincoln
13. Noxon Rapids	Sanders
14. Savage Lake	Lincoln
15. Skyles Lake	Flathead
16. Sophie Lake	Lincoln
17. Tetrault Lake	Lincoln
18. Woods Bay (Flathead Lake).....	Lake
19. Ashley Lake	Flathead

Stream Access — 3

1. Flathead River (Holt Bridge).....	Flathead
2. Whitefish River	Flathead
3. Flathead River (Old Steel Bridge).....	Flathead

Other — 5

1. Bowser Lake Game Range.....	Flathead
2. Flathead Goose Islands.....	Lake
3. Mary Ronan (Spawn Site).....	Lake
4. Pablo Management Area.....	Lake
5. Ninepipe Management Area.....	Lake

DISTRICT 2

Headquarters — Missoula

Lake Access — 1

1. Upsata Lake	Powell
----------------------	--------

Stream Access — 3

1. Tamarack Gulch (Rock Creek).....	Granite
2. Welcome Creek (Rock Creek).....	Granite
3. Marlowe Springs	Lake

Other — 5

NAME	COUNTY
1. Anaconda Hatchery.....	Deer Lodge
2. Arlee Hatchery	Lake
3. Blackfoot-Clearwater Game Range.....	Powell & Missoula
4. Bitterroot Game Range.....	Ravalli
5. Warm Springs Game Farm.....	Deer Lodge

DISTRICT 3

Headquarters — Bozeman

Lake Access — 8

1. Brown's Lake	Beaverhead
2. Dailey Lake	Park
3. Harrison Lake (Willow Creek Res.).....	Madison
4. Meadow Lake (Ennis Lake).....	Madison
5. Park Lake	Jefferson
6. Red Rock Lake.....	Beaverhead
7. Tizer Lake	Jefferson
8. Bozeman Headquarters	Gallatin

Stream Access — 14

1. Burnt Tree Hole.....	Madison
2. Cardwell	Madison
3. Eight Mile Ford.....	Madison
4. Ennis	Madison
5. Emigrant	Park
6. Grey Cliff	Gallatin
7. Jefferson River	Gallatin
8. Mallards Rest	Park
9. Paradise	Park
10. Parrot Castle	Jefferson
11. Sheep Mountain	Park
12. Valley Garden	Madison
13. Varney Bridge	Madison
14. Big Hole River.....	Beaverhead

Other — 5

1. Fleecer Mountain Game Range	Silver Bow
2. Gallatin Game Range.....	Gallatin
3. Madison-Bear Creek Game Range	Madison
4. Madison-Wall Creek Game Range	Madison
5. Canyon Ferry Reservoir.....	Broadwater

DISTRICT 4

Headquarters — Great Falls

Lake Access — 5

NAME	COUNTY
1. Arod (Brady Lake).....	Pondera
2. Ackley Lake	Judith Basin
3. Carter Pond (Upper).....	Fergus
4. Carter Pond (Lower).....	Fergus
5. Bean's Lake.....	Lewis & Clark

Stream Access — 1

1. Smith River	Meagher
----------------------	---------

Other — 6

1. Freezout Lake	Teton
2. Great Falls Hatchery.....	Cascade
3. Judith River Game Range.....	Judith Basin
4. Lewistown Hatchery	Fergus
5. Sun River Game Range.....	Lewis & Clark
6. Tiber Reservoir.....	Toole & Liberty

DISTRICT 5

Headquarters — Billings

Lake Access — 1

1. Broadview Pond	Yellowstone
-------------------------	-------------

Stream Access — 11

1. Absorka	Stillwater
2. Aspen Park	Carbon
3. Beaver Lodge	Carbon
4. Buffalo Jump	Stillwater
5. Bull Springs	Carbon
6. Columbus	Stillwater
7. Horse Chief Station.....	Carbon
8. Rosebud Isle	Stillwater
9. Sweetgrass Canyon	Sweetgrass
10. Swinging Bridge	Stillwater
11. Water Birch	Carbon

Other — 1

NAME	COUNTY
1. Bluewater Hatchery	Carbon

DISTRICT 6

Headquarters — Glasgow

Lake Access — 4

1. Bear Paw Lake.....	Hill
2. Cole Ponds	Phillips
3. Fort Peck Dredge Cuts.....	Valley
4. Whitetail Reservoir	Daniels

Stream Access — None

Other — 2

1. Fox Lake Waterfowl Area.....	Richland
2. Sleeping Buffalo	Phillips

DISTRICT 7

Headquarters — Miles City

Lake Access 3

1. Johnson Reservoir	Dawson
2. Miles City Fish Pond (Branum Pond)	Custer
3. Rush Hall Pond.....	Fallon

Stream Access — None

Other — 1

1. Miles City Headquarters.....Custer
Development work is currently being carried out at the following areas, which are included in the complete list of sites.

It is planned that, as funds become available, the remainder of the areas will be developed to their potential in regard to recreation. This should represent an important contribution to the state's over-all Outdoor Recreation program.

PRESENT DEVELOPMENT OF FISHING ACCESS SITES

Bean's Lake (Augusta Area)

4 latrines	1 well and pump
10 garbage containers	1 mile fence
10 tables	1 boat launching ramp
10 fireplaces	
1 sign	4 cattle guards
½ mile road work	

Brown's Lake (Glen Area)

cleanup	6 tables
2 latrines	6 fireplaces
6 garbage containers	1 sign

Sheep Mountain**(Yellowstone River—near Livingston)**

2 latrines	¼ mile road
4 garbage containers	1 acre cleared
4 tables	1 sign
4 fireplaces	½ mile of fence
1 bridge	

Ennis (Madison River)

2 latrines	Drinking Water
6 garbage containers	(Provisions For)
6 tables	Riprapping—river's
6 fireplaces	edge

Castle Rock (Stillwater River)

2 latrines	1 bridge
4 garbage containers	road grading
4 tables	1 cattle guard
4 fireplaces	

Blanchard Lake (Whitefish Area)

2 latrines	1 boat launching
2 garbage containers	ramp
3,200 linear feet of road	3 tables
	3 fireplaces

Harper Lake (Blackfoot-Clearwater)

2 latrines	2 fireplaces
1 garbage container	1 sign
1 table	

Bear Paw Lake (Havre Area)

1 latrine	1 well
20 garbage containers	4 interior signs
15 tables	1 incinerator
28 fireplaces	1 bonfire circle
2½ miles fencing	2 boat docks
2 cattle guards	3 shelters
1 entrance sign	15 parking barriers

Necessary maintenance is an especially important part of the Department's outdoor recreation development program. It is expected that arrangements will be made, following the completion of each area's development, for a system of continuous maintenance.

STATISTICAL SECTION

The operations of the Montana Fish and Game Department are based on the best information available. During the past two years over one million dollars was spent for fact finding. The purpose of these expenditures was to maintain or increase the recreational potential of Montana by knowing what is happening to fish and wildlife.

The statistical section works with all divisions to increase efficiency in fact gathering.

Annual surveys are conducted by mail questionnaires which give the Department an estimate of harvest of upland game birds, waterfowl, big game, furbearers and fish. A great deal of information is obtained that aids in management. The production of this information is being implemented by having data analyzed on high speed electronic computers. In this way, the data is available to the Department and the public as soon after a hunting season as possible.

To further reduce the costs of collecting information and to implement its becoming a part of fish and game management, the Statistical Section was instrumental in the design

of the new license system. This system, the first major license change in several decades, saved the Department several thousands of dollars in forms costs the first year. It will provide a licensing system that will insure quicker, cheaper information to the game, fish and enforcement divisions.

Montana's wildlife and fish habitat is undergoing increased evaluation. The economic evaluation of stream destruction, the use of range by game animals and domestic livestock, the effects of overpopulation of big game have all been large research problems which have occupied the services of the Statistical Section. Fisheries studies on Canyon Ferry Reservoir, Flathead Lake, and Rock Creek near Missoula represent large full scale studies that can only be covered economically by sampling and statistical analysis.

These projects have meant a maximum amount of data at the earliest possible time at the cheapest cost. The goals provide new insights into the management of resources and more information that will help maintain a recreational resource.



FISHERIES

Montana is truly a great fishing state. Her trout streams are unexcelled. A few years ago 450 top American sport fishing experts completed a 4-year survey and selected the 100 best trout streams in the country. Twelve of the 100 were in Montana, and the Madison River was named as the nation's number one trout stream. Each year trout from Montana waters receive honors in a fishing contest conducted by a national sports magazine.

Although best known for trout, Montana has good bass, walleye, sauger, kokanee, northern pike, paddle fish and whitefish fishing as well. Grayling are more numerous here than in any other state except Alaska.

Fish Habitat Preservation

In working to perpetuate this valuable resource, Montana fisheries biologists are among leaders in the nation on studies and action programs to protect trout habitat in streams. Habitat is the natural abode or home of an animal. An animal, species or community of animals can be destroyed as surely by subtle changes in habitat as by annihilation with poison. Habitat is the key to wildlife abundance.

During the biennium a study on the effect of silt on trout streams was completed. It showed that large sediment concentrations in a stream are disastrous to trout production. In Bluewater Creek, Carbon County, large sediment concentrations practically eliminated insects important as trout food, eliminated trout reproduction, and in turn the trout population. Grayling eggs and kokanee eggs fared no better than rainbow, cutthroat and brown trout eggs; however, sucker eggs were able to withstand sediment with little loss.

Since 1957 the Department has assigned a fisheries biologist to the position of Pollution

Control Biologist. During the biennium he has investigated water quality and pollution problems on various streams of the State. This included a study of the effects of aerial application of DDT near Boulder, Montana by the U. S. Forest Service. Dead fish, mostly trout, were recovered from waters in this area and dead frogs were reported in a pond. Large numbers of aquatic insects (fish food) were killed in the streams and complete insect kills occurred in some stream sections. Sampling one year after the spraying indicated that the aquatic insect population has substantially recovered with the exception of caddis flies at some stations.

A department-supported doctoral thesis, THE EFFECT OF DDT ON COLD WATER FISH AND FISH FOOD ORGANISMS, was completed during the biennium. Among other findings, delayed mortality occurred during a six-month observation period in all species of fish treated with DDT. Aquatic insects in a test stream were reduced 99 percent following application of DDT at one pound per acre (the rate then



Fort Peck Dam Dredge cut. (Photo by U. S. Army Corps of Engineers)

used in Montana forest spraying against spruce budworm) and required 18 months to regain pre-treatment numbers.

During 1962, thirteen Montana trout streams were surveyed to measure the amount of stream channel alterations and to determine the parties responsible for the alterations. The streams were chosen so as to cover all areas of the state. It was found:

1. One-third of the total length of the streams surveyed (250 of 768 miles) had been altered from their natural condition.
2. There were nearly three alterations per stream mile and the average length of a stream alteration was 664 feet.
3. The most serious loss to fish production was nearly a 10 percent decrease in the natural length of stream channel.
4. There were over 5½ times as many catchable-sized trout and nearly 10 times as many whitefish censused in natural channels as in the altered channels.

A booklet describing the survey and its results was published by the department. It was acclaimed by Oscar Godbout in THE NEW YORK TIMES (April 21, 1964) "one of the most impressive pieces of documentation of damage this writer has ever seen".

The 1963 legislature passed the Stream Conservation Law whereby protection and preservation of fish and game resources, particularly fishing waters, was declared to be a policy of the state. The law provides that agencies or subdivisions of the state government shall give the Fish and Game Commission advance notice of projects affecting stream channels. The Fish and Game Department reviews plans for such projects and, if damage will occur to fish or game habitat, the commission makes recommendations to evade or minimize the damage. The law also provides for arbitration if agreement cannot be reached between the Fish and Game Commission and the constructing agency.

Construction of Fishing Lakes

During the biennium the department built a dike across the dredge cut which was dug when Fort Peck Dam was built. The dike isolates a 65-acre lake which has been chemically treated to eliminate non-game fish and replanted with trout. The U. S. Army Corps of Engineers cooperated in this project.

The department gave financial assistance to other organizations and agencies in the following projects involving public fishing lakes:

Increasing depth of 12-acre combination stockwater pond on Rush Hall ranch near Baker, Montana to make it suitable for fish-life.

Construction of 10-acre pond in Hollecker Recreation Park at Glendive, Montana.

Construction of 92-acre reservoir on Box Elder Creek watershed at Plentywood, Montana.

Enlarging Gartside Lake at Sidney, Montana to 40 acres and improving spillway.

Enlarging Snowbank Lake at Lincoln, Montana to 6½ acres.

PUBLIC FISHING ACCESS SITES

Public fishing access sites were obtained on the following waters:

Water	County	No. of sites	No. of acres
Marl Lake.....	Lincoln	1.....	3.02
Loon Lake.....	Lincoln	1.....	.56
Whitetail Res.....	Daniels	2.....	65.26
Carters Ponds.....	Fergus	1.....	4.80
Browns Lake.....	Beaverhead	1.....	73.78
Rock Creek.....	Granite	1.....	4.00
Flathead Lake.....	Flathead	2.....	4.47
Jefferson River.....	Jefferson & Madison.....	2.....	36.53
Smith Lake.....	Flathead	1.....	3.16
Beans Lake.....	Lewis & Clark.....	1.....	16.33
Flathead River.....	Flathead	1.....	11.59
Big Hole River.....	Beaverhead	1.....	15.00

Construction of Clearwater River Fish Barrier

Late in 1963 a fish barrier (low dam creating a falls) was constructed across the Clearwater River between Alva and Inez Lakes. This is the second such barrier to be built on the Clearwater—one was built just below the outlet of Rainy Lake in 1957. These barriers will permit progressive chemical treatment from the headwaters downstream to eliminate non-game fish without danger of reinvasion by non-game fish from below. The small fish management units created by the barriers can be thoroughly treated with chemicals and managed individually.

Missouri River Fish Population Study

Various agencies of the federal government have made recommendations for development of the Missouri River from Fort Benton downstream to Fort Peck Reservoir. Recommendations range from complete impoundment with a series of dams to preservation of this reach of river as a National Wilderness Waterway.

None of the reports by these agencies contain factual information on the fisheries resource or the probable effects the various developments will have on this resource.



Clearwater River Fish Barrier—to prevent upstream movement of rough fish.

To gain needed information, a fish population study with fish traps was undertaken in 1962 and 1963. Information to date indicates a sauger population, under-utilized, but of great potential value. Also there are channel catfish, paddlefish and burbot with potential sport fishery value.

The Fisheries Division plans to continue the inventory of the fish population in the Missouri River with emphasis on the relationship between fish in the river and in its tributaries. Only in this way can the proposed developments on the Missouri River be adequately evaluated and provisions made to preserve the fisheries resource.

Helicopter Mountain Lake Survey

It is estimated that Montana has 2,000 mountain lakes. A considerable number are inaccessible to even four-wheel drive vehicles.

Although mountain lakes presently support a relatively small part of Montana's sport fishing, there is considerable interest from sportsmen and outfitters regarding their management. Also, the department is frequently asked for recommendations on mountain lakes being considered for irrigation development. Such recommendations should be based on a knowledge of all lakes in the immediate area. Only in this way can the importance of an individual lake be judged.

In 1962 the Montana Fish and Game Department purchased a helicopter for fish and game management work. Immediately mountain lake survey gear and methods were modified so this modern means of transportation could be used. A cost analysis of 45 lakes surveyed in 1962 disclosed the cost of transportation was \$74.44 per lake. This was \$5.00 less than our lowest cost per lake for rented horseback transportation. The survey took 13 days whereas by the old method 30 days would have been required.



The use of a helicopter has greatly simplified survey work on high mountain lakes.

During the biennium the helicopter was employed in surveying 87 lakes. Here are the results:

Lakes for which fish planting was recommended	9
Lakes not recommended for planting	
Already overstocked (naturally or with hatchery fish).....	7
Adequate self-sustaining game fish population	25
Not suitable (physical aspects of lake or terrain)	41
Planting deferred (additional information needed or lake being held in virgin condition for future management).....	5
<hr/>	
Total mountain lakes surveyed by helicopter, 1962-63	87

Our surveys in recent years have shown decisively that indiscriminate stocking of cold, infertile mountain lakes is not only wasteful but damaging. Damage is possible from overstocking and in some cases from introduction of fish detrimental to existing species. The need for investigating these lakes before planting has been clearly demonstrated, and the helicopter has proven an invaluable tool in this program.

Fish Manager Assigned Southeastern Montana

During the biennium a fisheries manager was assigned to the Fish and Game Headquarters at Miles City, the last district without a fisheries manager. In addition to fisheries work on Yellowstone and Tongue Rivers and other streams in the district, considerable emphasis will be placed on developing sport fishing in the numerous ranch ponds and small lakes.

Paddlefish Fishery in the Yellowstone River

In April 1962 an unusual fishery was rediscovered at Intake Dam on Yellowstone River just downstream from the City of Glendive—it was paddlefishing. Paddlefish feed on plankton (microscopic animals in the water) and will not take ordinary bait. Fishing is done by snagging.

Intake Dam was built in 1903. "Old-timers" report snagging was excellent in 1914, '15 and

'16, but after that, sport catches of paddlefish were not heard of until 1962. Starting in 1962 snagging has been excellent for a few weeks each spring during the paddlefish spawning migration. As many as 30 fishermen at one time line the banks 50 to 100 yards below the dam.

Studies are underway on the reproductive rates of paddlefish in Montana, the age of sexual maturity, and other phases of their life history. This information will be used in developing a management program to insure perpetuation of the paddlefish and, in turn, paddlefishing.



Paddlefishing near intake on the Yellowstone River.

Outlook

The point has been reached in fisheries management where a hard look must be taken at allocation of the fisheries management dollar.

The use of hatchery fish is often effective, but expensive. Under many circumstances the use may be ineffective. It presently is the major expenditure in fisheries management. In many waters we have reached the point of diminishing returns. In other words, on these waters we have reached the point where additional hatchery fish do not improve fishing enough to justify the additional cost. Even more important, money spent on the ineffective fraction of hatchery production is denied to more effective programs.

We plan a shift in the fish management program from over-emphasis on fish planting to a

better balance between planting and other programs. These "other" programs include lake building, acquisition of fishing access, and chemical treatment to eliminate undesirable fish so desirable species can be replanted. Highest priority will be given to preservation and restoration of fish habitat; and where possible, improvement of fish habitat.

Montana Cooperative Fisheries Research Unit

On July 1, 1963, the Montana Cooperative Fisheries Research Unit came into being. It is supported jointly by the Montana Fish and

Game Department, Montana State College and U. S. Bureau of Sport Fisheries and Wildlife. The unit is located at Montana State College, Bozeman. Its purpose is multiple: training of professional fisheries workers, research on fisheries problems, and demonstrating fisheries principals to other agencies, landowners, and the public. Fisheries units were established in several other states at the same time as in Montana and are comparable to Cooperative Game Research Units which play an important part in the game management programs of many states.

Fish Hatcheries



Taking fish spawn.

The Montana Fish and Game Department operates nine fish hatcheries located at Anaconda, Arlee, Big Timber, Bluewater (Bridger), Emigrant, Great Falls, Lewistown, Libby and Somers. The potential production of any hatchery is controlled by water quality, temperature and volume. These are most favorable at Lewistown, Anaconda, Bluewater and Great Falls. Thus these are the best stations and together with Arlee produce over 90% of the catchable-sized fish used in management programs. Arlee is the brood station for rainbow trout. A high-quality brood stock of these fish has been developed at Arlee and this station now produces all the rainbow eggs the department requires. Prior to the development of this brood, eggs were provided by trapping wild stocks and by direct purchase from out-of-state sources. Not only do we now have better quality eggs, but the supply is more dependable and the cost of eggs has been reduced.

Water temperature and volumes are not conducive to high fish production at Emigrant,

Big Timber, Somers and Libby. When these stations were built, trout planting consisted primarily of eggs and fry, so water temperatures (and therefore trout growth rates) were not considered important. Also, at the time these stations were built the hauling of large numbers of fish for great distance was almost impossible and it was considered necessary to have many small hatcheries scattered throughout the state, each with a small distribution area. Today it is known that larger-sized fish must be planted in most Montana streams and in many of the lakes to realize a better return of these fish to the creel. Also today the department has large, efficient distribution units which can transport fish in good condition across the entire state. Thus the rainbow production program no longer needs widely scattered, small, cold-water stations, and Emigrant, Big Timber, Somers and Libby are used for other purposes.

At the Libby station the fisheries division is developing a brood stock of westslope cutthroat trout. This species is needed for northwestern Montana and no other source presently exists except wild stocks. The Somers station collects the eggs required from wild fish—cutthroat, grayling and kokanee. Some of these are hatched at Somers and some are distributed to other stations. The Emigrant and Big Timber stations raise some rainbow. Their colder water is utilized in connection with one of the bigger production stations to arrive at a proper sized fish for some special purpose. These are required at a different time of the year than such a sized fish could be produced if held entirely at a warm-water station. Emi-

grant and Big Timber also rear some Yellowstone cutthroat trout primarily for planting in mountain lakes. The need for two such stations has been greatly reduced over the past years and plans are to close one of these stations in late 1964.

The problems of raising fish are naturally complex. The product is alive and must be kept alive and healthy. It is continually growing in size and weight, compounding the problems of keeping the product within the limits of space and water available. It must be produced to a proper size at the right time of year for the waters in which it is to be planted. It is subject to a veritable host of diseases which,

if left untreated, could completely eliminate the production of a hatchery. There are, in addition, the problems inherent with the handling of water; broken or plugged pipelines, flooding, silting, and the like; all of which can seriously damage hatchery operations.

The Montana hatchery system is alert to the many problems it faces. This alertness has made the production of quality fish a goal rather than the production of large numbers and pounds of fish alone. A quality fish may survive to end up in an angler's creel while a fish reared in an over-crowded or unsanitary condition will be nothing but a distribution figure from a hatchery.



Use of aircraft and other modern methods has simplified and improved planting of fish.

FISH PLANTED AND EGGS PRODUCED BY MONTANA STATE FISH HATCHERIES

May 1, 1952 - April 30, 1963		May 1, 1963 - April 30, 1964	
Rainbow Trout		Rainbow Trout	
Total Fish	5,038,300	Total Fish	6,200,483
Total Eggs	9,029,083	Total Eggs	9,213,077
Cutthroat Trout		Cutthroat Trout	
Total Fish	279,801	Total Fish	265,306
Total Eggs	1,450,313	Total Eggs	739,721
Brook Trout		Brook Trout	
Total Fish	193,712	Total Fish	105,605
Golden Trout		Golden Trout	
Total Fish .....	.....	Total Fish	13,621

May 1, 1962 - April 30, 1963

Grayling

Total Fish 371,039
Total Eggs 619,496

Kokanee

Eggs 8,682,664
Fry 3,090,427

GRAND TOTAL—State

Eggs Produced 19,781,556
Fish Planted 8,973,279

May 1, 1963 - April 30, 1964

Grayling

Total Fish 401,603
Total Eggs 1,033,296

Kokanee

Eggs 7,140,240
Fry 4,947,124

GRAND TOTAL—State

Eggs Produced 18,126,334
Fish Planted 11,935,242

FISH PLANTED BY NATIONAL FISH HATCHERIES IN MONTANA

May 1, 1962 - April 30, 1963

Rainbow Trout

Total Fish 1,346,403

Cutthroat Trout

Total Fish 146,215

Mackinaw Trout

Size	Number
4"

Grayling

Total Fish 26,262

Bass

Size	Number
2"	85,760
3" .....	.....

Catfish

Size	Number
3"	9,000

Bluegill

Size	Number
1"	45,100

GRAND TOTAL—National 1,658,739

May 1, 1963 - April 30, 1964

Rainbow Trout

Total Fish 1,322,135

Cutthroat Trout

Total Fish 186,444

Mackinaw Trout

Size	Number
4"	14,631

Grayling

.....

Bass

Size	Number
3"	90,000

Catfish

Size	Number
3"	20,608

Bluegill

Size	Number
.....

GRAND TOTAL—National 1,633,818



Warden trainees receive firearms training from F.B.I. instructors.

LAW ENFORCEMENT DIVISION

During the past biennium, outdoor recreation has continued to expand. The use of Montana wildlife resources reflects this expansion.

An efficient and well-trained field force of wardens is important to the proper administration of the wildlife resource. Basic to having this type of force is the selection and training of new wardens.

Training and Supervision of Personnel

To meet this need for competent and well-trained personnel, the Department has entered into a new training program for its law enforcement officers during the past biennium. The training program is designed to have the trainees as close as possible to full job knowledge when they step into their newly assigned districts.

The game warden's job has grown to a complex job involving not only law enforce-

ment but also assistance in game management, fish management and public relations.

The new warden is no longer given a badge and law book and sent into the field to sink or swim, nor is he taken under wing by an old hand. These methods may have been less costly money-wise but were less effective and expensive public relation-wise. With the new training program, the warden after his one year probationary period has a greater job knowledge.

The program, an individual training and development program, was designed to increase the versatility and efficiency of the employee in work assignments, thereby developing a well-trained work force to improve the cooperation, efficiency and economy of department operations.

Upon employment, the new warden is introduced to the first of four portions of the program. He attends an orientation and training

school conducted by the Department with instructors from the department's personnel, the University and College, Federal Bureau of Investigation, Attorney General's office and a number of other cooperating agencies.

As he attends the school he builds a training manual that provides him with the basic knowledge necessary in fulfilling his duties and responsibilities. Through lecture and reference reading the trainee fills in sections of the training manual. Other sections, some of which can be learned through practical experience only, are written in for self-study or presented in classrooms. As subjects are given at the training school, the trainee develops his manual into the following major sections:

A. Orientation Section consisting of a brief history of the department and the organizational structure of the department.

B. Administration, Forms and Reports Section in which the trainee is familiarized with the communications, personnel information, forms and reports.

C. Law Enforcement Section in which the technical aspect and practical aspect of wildlife law enforcement is given. Subjects in this section consist of a practical case in the field, search and seizure, laws of arrest, courts and court procedure, rules of evidence, collection and preservation of evidence, defensive tactics, firearms training, FBI facilities and services.

D. Equipment and Techniques Section is a written section for self-assigned reading. This section includes a listing of equipment available for the warden's use and its maintenance.

E. Information and Education Section consists of public speaking, public relations, news and letter writing, water safety and hunter safety.

F. Game Management Section includes information and study of the Wildlife Investigation Laboratory, game management practices, "show-me-trips", range management, live trapping of big game and game range operation.

G. Fish Management Section includes orientation to fish management practices, fisheries biology, fisheries research and hatchery operations.

The second portion of the training program is the initiation of the individual's Training History Record. From reviewing these records, wardens can be selected for special assignments according to their experience and training. The History Record will reveal needed training for certain individuals. It will be a useful reference when job openings in advanced grades are available.

The third portion of the program is the Employee Development Plan. This plan is prepared for all new employees immediately after employment. It is continued in effect until all major jobs or activities in the department related to the warden's job have been experienced. This is a month by month training action plan giving details of work with the Game Management, Fish Management, Information and Education and Law Enforcement Divisions, plus the self-assigned studies. This plan is used by the training officer and warden captain for evaluating the development of the trainee, planning his probationary year training program and checking his progress currently. It can be used as a basis in determining appropriate training details, assignments and transfers. It should be used by the trainee as a guide to self-development.

The last portion to be initiated is the Individual Self-Improvement Plan. It is used to emphasize training needed to improve performance in his present position and the development needed to improve the warden for the job ahead.

In August of 1963, this training program was initially started with ten wardens. They completed a four-week intensive training school and are currently included in a year's guided on-the-job training with all department divisions.

In addition to this expanded training program, the Enforcement Division has continued in many other phases of activity.

Law Enforcement

Law enforcement is still the basic duty of the game warden. Patrolling the streams, fields and forests to prevent or apprehend violations of the Fish and Game Laws or Rules and Regulations of the Commission is still the most important part of the enforcement program. The tables on the following page gives comparative information on the results of this activity.



All Wardens are required to have training in current first aid techniques and to carry first aid cards.

In order to more effectively deal with the modern law violator, a new organizational plan has been instituted. The Montana Fish and Game Commission has authorized three new Enforcement Specialist positions whose duty it is to work on problem areas of enforcement. They may be moved any place in the state on short notice to deal with the more difficult enforcement problems. While the plan has only been in operation a short time, it is already showing very good results.

Water Safety

The use of Montana waters by boaters, swimmers, fishermen, and water skiers continues to increase and the problems of enforcement of water safety laws also continue to increase. Ample funds and clear responsibility for administration will have to be provided in the future to properly administer these expanding water activities.

Firearms and Hunter Safety

New legislation, effective this biennium, requires all children between 12 and 18 to take and pass a course of instruction in safe fire-

arm practices before they may legally purchase a hunting license.

The warden force administers the field portion of this program through a very cooperative and effective volunteer system of instructors and county chairmen.

The new requirement has made necessary an expansion of this program, to provide adequate instruction for the additional students under the new law.

Bear Depredation and Game Damage Control

The control of bear depredation and game damage on private property is another basic and important warden responsibility. The past biennium showed an increase in this phase of the program with a relatively long and severe winter contributing to the problem. Cooperation with landowners in working out mutual problems and programs will help insure public access to private land in future years.

Fish and Game Management

Scientific information is the foundation of the present wildlife management programs. Wardens assist in the gathering of this information under the supervision and guidance of qualified personnel.

Youth Groups

Each warden is a part of the community in which he lives. His assistance with youth activities in the community to promote wildlife conservation with the children is an important part of his job in promoting the future of the wildlife resources. The Fish and Game Department has equipped each warden with a small wildlife reference library to assist him in his youth program. Other information and educational aids such as slides, lectures, movies are also available for this purpose.

Littering

Littering of recreational areas both public and private has continued to be a severe problem. Our present litter laws are not extensive enough to control this problem under all conditions.

Wardens participate in preventive programs and aid in the enforcement of the present laws, however, more comprehensive laws will eventually be necessary.

MONTANA FISH AND GAME DEPARTMENT STATEMENT OF INCOME

May 1, 1962-April 30, 1963

Hunting and Fishing Licenses:

Resident Bird & Fish.....	188,898	@	\$ 3.00	\$ 566,694.00	
Resident Big Game.....	122,659	@	3.00	367,977.00	
Non-Resident Limited Fishing.....	48,714	@	3.00	146,142.00	
Non-Resident Fishing	6,537	@	10.00	65,370.00	
Non-Resident Bird	283	@	25.00	7,075.00	
Non-Resident Big Game.....	5,537	@	100.00	553,700.00	
Shipping Permits	7,440	@	.60	4,464.00	
Fishing Cert. of Identification.....	2,259	@	1.00	2,259.00	
Bow and Arrow.....	2,193	@	2.00	4,386.00	
Big Game Cert. of Identification.....	876	@	1.00	876.00	
Non-Resident Deer	15,228	@	20.00	304,560.00	
Boat Renewal	4,318	@	3.00	12,954.00	
Mountain Goat	1,358	@	5.00	6,790.00	
Boat Applications	1,592	@	3.00	4,776.00	
Turkey	1,573	@	2.00	3,146.00	
Boat. Cert. of Identification.....	38	@	1.00	38.00	
Non-Resident Bear	107	@	20.00	2,140.00	
Moose	836	@	25.00	20,900.00	
Mountain Sheep	456	@	15.00	6,840.00	
Non-Resident Antelope	3,714	@	20.00	74,280.00	
				<u>\$2,155,367.00</u>	
Less Dealers' Fees.....				58,990.10	\$2,096,376.90
1960 Accounts Paid.....					28.50
1961 Accounts Paid.....					8,580.00

Miscellaneous Sales:

General Trapper	903	@	10.00	9,030.00	
Beaver Tags	19,274	@	.50	9,637.00	
Beaver Permit	309	@	5.00	1,545.00	
Outfitter	324	@	10.00	3,240.00	
Land Owner Trapper.....	117	@	1.00	117.00	
Resident Fur Dealer.....	29	@	10.00	290.00	
Fur Dealer Agent.....	29	@	10.00	290.00	
Non-Resident Fur Dealer.....	4	@	50.00	200.00	
Taxidermist	29	@	15.00	435.00	
Minnow Seining	15	@	10.00	150.00	24,934.00

Miscellaneous Revenue:

Fines	40,827.63	
Sale of Fish and Meats.....	4,503.42	
Rents	19,156.00	
Other Revenue	6,812.94	
Land Lease—Tiber	4,841.78	
Land Lease—Canyon Ferry.....	1,158.45	
Sale of Fish Eggs.....	120.00	
Sale of Hides.....	16.00	
Interest on Bonds.....	3,750.00	
Rough Fish—Ft. Peck.....	1,069.22	82,255.44
		<u>\$2,212,174.84</u>
Pittman-Robertson Income by Federal Reimbursement.....	573,283.86	
Dingell-Johnson Income by Federal Reimbursement.....	114,146.80	
TOTAL INCOME TO DEPARTMENT—MAY 1, 1962-APRIL 30, 1963		<u>\$2,899,605.50</u>

MONTANA FISH AND GAME DEPARTMENT
STATEMENT OF INCOME
May 1, 1963-April 30, 1964

Hunting and Fishing Licenses:

Resident Bird & Fish.....	195,847	@	\$ 3.00	\$ 587,541.00
Resident Big Game.....	122,291	@	3.00	366,873.00
Non-Resident Limited Fishing.....	53,896	@	3.00	161,688.00
Non-Resident Fishing	7,102	@	10.00	71,020.00
Non-Resident Bird	382	@	25.00	9,550.00
Non-Resident Big Game.....	7,183	@	100.00	718,300.00
Shipping Permits	143	@	.60	85.80
Fishing Cert. of Identification.....	2,688	@	1.00	2,688.00
Bow and Arrow.....	2,270	@	2.00	4,540.00
Big Game Cert. of Identification.....	805	@	1.00	805.00
Non-Resident Deer	10,505	@	20.00	210,100.00
Turkey	2,510	@	2.00	5,020.00
Mountain Goat	1,640	@	5.00	8,200.00
Moose	819	@	25.00	20,475.00
Mountain Sheep	518	@	15.00	7,770.00
Non-Resident Antelope	4,260	@	20.00	85,200.00

\$2,259,855.80

Less Dealers' Fees..... 58,237.15

\$2,201,568.65

1961 Accounts Paid.....

504.95

1962 Accounts Paid.....

13,928.25

Miscellaneous Sales:

General Trapper	1,008	@	10.00	10,080.00
Beaver Tags	16,898	@	.50	8,449.00
Beaver Permits	258	@	5.00	1,290.00
Outfitter	395	@	10.00	3,950.00
Land Owner Trapper.....	163	@	1.00	163.00
Resident Fur Dealer.....	27	@	10.00	270.00
Fur Dealer Agent.....	25	@	10.00	250.00
Non-Resident Fur Dealer.....	4	@	50.00	200.00
Taxidermist	24	@	15.00	360.00
Minnow Seining	17	@	10.00	170.00

25,182.00

Miscellaneous Revenue:

Fines	38,656.30
Sale of Fish and Meats.....	3,106.30
Rents	4,693.00
Other Revenue	14,858.66
Land Lease—Tiber	4,841.78
Land Lease—Canyon Ferry.....	1,145.05
Sale of Fish Eggs.....	841.80
Interest on Bonds.....	3,750.00
Rough Fish—Fort Peck.....	2,096.02

73,988.91

\$2,315,172.76

Pittman-Robertson Income by Federal Reimbursement.....

436,480.36

Dingell-Johnson Income by Federal Reimbursement.....

109,010.25

TOTAL INCOME TO DEPARTMENT—MAY 1, 1963-APRIL 30, 1964

\$2,860,663.37

DETAIL OF EXPENDITURES

For Fiscal Years Ending April 30, 1963 and April 30, 1964

	April 1963	April 1964
COMMISSIONERS.....	\$ 12,236.61	\$ 14,809.12
ADMINISTRATION.....	152,325.80	251,768.11
HELENA WAREHOUSE.....	7,473.77	1,421.67
MECHANIC SHOP.....	14,372.93	17,242.76
STORES AND SUPPLIES.....	6,019.86*	11,625.22
MISCELLANEOUS ACCOUNTS.....	64,536.48	110,248.82
INFORMATION AND EDUCATION (Other Than District).....	100,418.03	129,933.42
HUNTER AND BOAT SAFETY PROGRAM.....	12,740.98	14,995.95
DISTRICT 1 INFORMATION AND EDUCATION PROGRAM.....	.....	6,128.71
DISTRICT 2 INFORMATION AND EDUCATION PROGRAM.....	14,181.31	14,097.75
DISTRICT 3 INFORMATION AND EDUCATION PROGRAM.....	11,540.93	10,617.16
DISTRICT 4 INFORMATION AND EDUCATION PROGRAM.....	17,109.65	16,833.79
DISTRICT 5 INFORMATION AND EDUCATION PROGRAM.....	15,453.93	15,227.27
DISTRICT 6 INFORMATION AND EDUCATION PROGRAM.....	2,670.14	613.34
DISTRICT 7 INFORMATION AND EDUCATION PROGRAM.....	.....	725.86
TOTAL INFORMATION AND EDUCATION.....	<u>\$ 174,114.97</u>	<u>\$ 209,173.25</u>
GRANTS.....	\$ 43,277.97	\$ 59,759.57
UNIVERSITY RESEARCH UNIT.....	16,482.73	19,593.38
DISTRICT HEADQUARTERS ACCOUNT.....	1,160.39*	123.71
AIRPLANE ACCOUNT.....	744.35	37,783.23
VEHICLE ACCOUNT.....	29,771.45*	5,175.09
OVERSNOW VEHICLE ACCOUNT.....	145.81	83.97*
HELICOPTER ACCOUNT.....	4,357.51	4,336.32*
ENFORCEMENT—District No. 1.....	72,947.80	77,348.70
ENFORCEMENT—District No. 2.....	80,345.74	80,891.64
ENFORCEMENT—District No. 3.....	110,101.52	104,762.88
ENFORCEMENT—District No. 4.....	100,458.05	108,611.41
ENFORCEMENT—District No. 5.....	85,604.26	82,264.26
ENFORCEMENT—District No. 6.....	60,943.37	69,590.73
ENFORCEMENT—District No. 7.....	61,526.57	68,702.11
ENFORCEMENT—General.....	43,473.29	63,421.14
TOTAL ENFORCEMENT.....	<u>\$ 615,400.60</u>	<u>\$ 655,592.87</u>

*Indicates Credit

DETAIL OF EXPENDITURES—(Continued)

FISH HATCHERIES	April 1963	April 1964
ANACONDA.....	\$ 49,232.59	\$ 46,929.98
ARLEE.....	30,405.96	73,360.54
BLUEWATER.....	45,239.11	47,689.59
BIG TIMBER.....	16,990.06	16,144.22
EMIGRANT.....	19,266.09	19,124.00
GREAT FALLS.....	42,682.26	38,023.31
HAMILTON.....	427.80	.....
LEWISTOWN.....	112,607.15	80,168.84
LIBBY.....	19,821.75	22,185.58
McNEIL.....	608.09	14.41
POLSON.....	726.83	287.95*
SOMERS.....	33,960.49	30,723.09
FISHERIES GENERAL (Includes fish distribution, hatchery biologists, Supt. of Hatcheries and Supt. of Fisheries.)	48,912.81	56,225.23
SPAWNING STATIONS.....	5,513.24	7,722.59
FISHERIES MANAGEMENT PROJECTS—		
MISCELLANEOUS FIELD PROJECTS.....	169,146.32	231,713.36
DINGELL-JOHNSON PROJECTS.....	147,629.41	170,679.12
TOTAL FISHERIES DIVISION.....	<u>\$ 743,169.96</u>	<u>\$ 840,415.91</u>
GAME FARM DIVISION:		
FORT PECK.....	\$ 7,708.98	\$ 1,710.45
WARM SPRINGS.....	28,866.01	24,443.84
MOIESE.....	406.83	122.90
TOTAL GAME FARM DIVISION.....	<u>\$ 36,931.82</u>	<u>\$ 26,277.19</u>
GAME MANAGEMENT.....	\$ 52,562.32	\$ 93,453.10
GAME MANAGEMENT—P. R. PROJECTS.....	617,061.80	604,886.24
TOTAL SALARIES.....	\$1,422,938.96	\$1,607,666.02
TOTAL OPERATIONS.....	615,896.54	753,610.96
TOTAL CAPITAL EXPENDITURES.....	279,562.58	375,028.36
TOTAL REPAIR AND REPLACEMENT.....	138,394.28	133,864.04
TOTAL APPROPRIATIONS.....	61,501.37	79,759.57
GRAND TOTAL OF EXPENDITURES.....	<u>\$2,518,293.73</u>	<u>\$2,954,928.95</u>

*Indicates Credit

RETURN REQUESTED

Return To
INFORMATION-EDUCATION DIVISION
MONTANA FISH & GAME DEPARTMENT
Helena, Montana
ZIP 59601

Helena, Montana
Sec. 34.66, P. L. & R.
U. S. POSTAGE

PAID

Permit No. 50

